

AMATEUR SATELLITE REPORT

AMSAT's Newsletter for the Amateur Space Program.



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Capacity Crowd Hears Space Symposium, Annual Meeting

If crowd size and reaction are satisfactory indications, AMSAT's second Annual Amateur Radio Satellite Symposium and the 1984 AMSAT Annual Membership Meeting were outstanding successes. More than 200 attended the 10 November meetings in Los Angeles' Amfac Hotel, just a few miles from Los Angeles International Airport. The day-long program featured speakers from around the world and drew attendees from as far as Australia (VK5AGR), Tasmania (VK7PF), New Zealand (ZL1AOX), England (G3YJO, G8NOB) and Japan (JA1ANG).

In every sense the events were an unqualified success in no small part due to the excellent organization and preparation of the team of W6SP, AD6P and N6DD, who put the planning package together and saw to it that everything went according to plan. Here's a synopsis of the day's events as recalled by this reporter.

Registration for the symposium began promptly at 0800 with Office Manager Martha Saragovitz and Laura Yowell (XYL of AD6P) staffing the registration desk under the overall guidance of N6DD. Registration went smoothly despite the occasionally long queues. Promptly at 0900 AMSAT Chairman and Symposium Facilities Chairman John Browning, W6SP, opened the session with brief remarks. He was followed by Cleyon Yowell, AD6P, Symposium Technical Chairman with equally brief remarks. With the preliminaries passed, the technical session itself began.

First off was Al Dayton, KA4JFO, who described 'Advanced Gateway Concepts' to the enthusiastic audience. Al described a plan whereby a group of Amateur Radio clubs and organizations would purchase a geosynchronous satellite, complete with several 'C' band transponders, and give access to the average ham through numerous gateway stations. The gateways, or teleports would serve large communities of Amateurs, according to Dr. Dayton.

Next, AMSAT Director Harry Yoneda, JA1ANG, presented a fascinating preview of the exciting JAS-1 satellite being built entirely in Japan by JARL and JAMSAT and scheduled for launch by NASDA, Japan's national space agency. The paper, written by JK1VXJ with technical assistance from JR1SWB, was translated and reported by JA1ANG. The audience learned of plans for a February 1986 launch of JAS-1.



Office Manager Martha Saragovitz (left) is assisted by Laura Yowell, XYL of AD6P at the registration desk.

According to JA1ANG, 'JAS-1 will have two missions to perform: One will be to provide amateurs with a JA mode—that is Mode J Analog mode—transponder similar to JAMSAT's Mode J that AO-8 carried with 2 meters up and 70 cm down. Second is to provide a JD mode—that is a Mode J digital store and forward transponder utilizing packet radio technology.' Launched by the Japanese H1 launcher, JAS-1 is expected to have a 1500-km orbit inclined 50 degrees to the equator, according to JA1ANG.



Attentive crowd listens at Space Symposium. Among many, distinguished guests are Bill Lazzaro, N2CF (first row, center) and Ian Ashley, ZL1AOX and Graham Ratcliff, VK5AGR second row, right. Doug Lockhart, VE7APU, is visible between Ian and Graham.



AMSAT Space Symposium Technical Program coordinator Cleyon Yowell, AD6P.

ARRL Technical Department Manager Paul Rinaldo, W4RI, described progress in Amplitude Compandered Side-Band (ACSB) techniques. Paul described initial experiments performed recently at ARRL Headquarters. He then explained Project Companion, a joint ARRL-AMSAT-Project OSCAR effort designed to encourage the use of the spectrum efficient ACSB technique on the ham bands. Paul explained that by using special compression techniques, along with some other 'tricks,' very substantial improvements in signal-to-noise ratio and intelligibility have been noted by land-mobile users of advanced ACSB radios. Tests performed by the Federal Communications Commission (FCC), both in the laboratory and in the field, showed excellent results, *Rinaldo said*. Paul's talk was supplemented by those of Jim Eagleson, WB6JNN, and Paul Shuch, N6TX, both of Project OSCAR. The two have been among the parade leaders in getting ACSB on the ham bands. Jim showed several interesting graphs indicating quantitative improvements realizable with ACSB. He then played several taped QSOs



AMSAT Director John Henry, VE2VQ.

dramatically showing the improvements of ACSB over conventional SSB. Jim pointed out that ACSB, like FM, had a pleasing quieting effect. He also showed some circuits he has developed for effective audio compression.

At 1100 Bob Diersing, N5AHD, gave an excellent presentation on 'Computers and the Satellites.' Bob focused on systems he has developed to track and decode the telemetry of the UoSAT satellites. His block diagrams and flow charts enthralled the audience. Bob revealed many of the techniques he has developed and which have distinguished him as one of the outstanding UoSAT telemetry experts in this hemisphere.

Following N5AHD's presentation, a first-rate buffet luncheon was served in a room immediately adjacent to the lecture hall. Again, thanks to N6DD and the hotel staff, a good time was had by all. After most had finished their meal, Vern Riportella, WA2LQQ, introduced two special commemorative plaques. Both were in honor of Finn Steenstrup, OX3FS, an employee of SRI International who died recently in an



Harry Yoneda, JA1ANG, reflects on banquet discussion.



Vern "Rip" Riportella, WA2LQQ speaks on geosynchronous satellites and Phase IV.



Bill Tynan, W3XO, speaks on future "Ham-In-Space" prospects including the upcoming flight of W8ORE in 1985.

accident in Greenland. Finn had helped in the recovery of UoSAT-OSCAR 11 earlier this year. Accepting the plaques on behalf of the Steenstrup family and SRI International was Dr. Bob Leonard, KD6DG, Director of SRI's Radio Physics Laboratory located in Menlo Park, California. OX3FS had worked for KD6DG at an SRI experimental radar site at Sondre Stromfjord, Greenland. Martin Sweeting, G3YJO, of the University of Surrey, Guildford, England, presented a memorial plaque on behalf of Surrey and the UoSAT team. WA2LQQ presented a second plaque on behalf of AMSAT and Amateur Radio. Dr. Leonard expressed the thanks of the Steenstrup family and SRI International and spoke of Finn's enthusiasm for his work and his involvement with the UO-11 effort.

At 1300 a distinguished group from the World Space Foundation spoke on the Solar Sail Project. Introduced by AMSAT's John Champa, K8OCL, were foundation president Robert Staehle, as well as Mark Bergham and Chauncey Uphoff. Each explained a different aspect of the Solar Sail



Harold Price, NK6K, speaks at the packet radio forum.

Project including its history, purpose, initial tests, program outline and some of the options that would rely on Amateur Radio for telemetry and communications. One would have the Solar Sail in a nearly geosynchronous orbit. Another would have the sail in a lunar orbit. K8OCL explained the agreement between AMSAT and the World Space Foundation to explore means of cooperation in future projects.

Next, another distinguished group presented a review of the latest happenings and progress on the PACSAT project. Speakers here included Harold Price, NK6K, Wally Lindstruth, WA6JPR, Rick Fleeter, WA8VGK, and Phil Karn, KA9Q. Each described various aspects of the PACSAT program. Price, PACSAT Project Manager, narrated a slide presentation that was (as is customary for N6NK) both entertaining and informative. WA6JPR described some of the experiments that he and others are performing in California. Fleeter discussed some of the propulsion motors being considered for PACSAT. This is an especially important aspect of PACSAT engineering since the anticipated Shut-



Bob Leonard, KD6DG (left), accepts OX3FS memorial plaque from Martin Sweeting, G3YJO.



Phil Karn, KA9Q, speaks on packet radio.



Bob Diersing, N5AHD, speaks on using computers for telemetry and tracking.

the launch will be too low for PACSAT; it will need to be boosted up by several hundred kilometers. Phil Karn, KA9Q, described progress on advanced modems and solicited help in designing PSK modems that will resist the anticipated radar interference the satellite is expected to encounter when in orbit.

Martin Sweeting, G3YJO, UoSAT Programme Manager, next summarized the status of both UoSAT-OSCARs 9 and 11. He said that both spacecraft were behaving well and that UO-11 had been well-stabilized, resulting in improved better link performance. A brief slide presentation showed the preparations that led to the launch of UO-11 last March.

Tom Clark, W3IWI, explained some of the economic factors that determine what projects can be built and what expenses AMSAT absorbs in order to keep the organization running. Tom pointed out especially the cost of publications in terms of its proportion to the overall budget. Tom said that in round numbers AMSAT spends \$250,000 annually for all purposes.



Tom Clark, W3IWI, addresses the AMSAT Annual General Meeting.



Space Symposium and Annual General Meeting Logistics Coordinator Dennis Dinga, N6DD.

Bill Tynan, W3XO, gave a progress report on future 'Ham-In-Space' activities. Bill noted that approval of the joint ARRL-AMSAT proposal for W00RE to fly a suite of Amateur Radio equipment was thought to be imminent. Among equipment expected to be approved, according to W3XO, was a 2-meter scanning receiver, 2-meter-to-10-meter scanning repeater, slow-scan television (SSTV) with a 10-meter downlink and other features. Bill said it appeared everything was in order for a 1985 flight of W00RE but that the exact date of the Shuttle flight was not fixed at that time.

Closing the technical program, WA2LQQ spoke of future advanced satellite projects. Rip claimed that an appraisal of Amateur Radio indicates that the time may be right to begin serious consideration of a system of geosynchronous Amateur Radio satellites for continuous global coverage. He cited some of the basic Phase IV conceptual work recently completed by W3GEY (who was unable to attend) as well as the so-called gateway concept, examined earlier by KA4JFO and others. In closing the technical program,



John Champa, K8OCL, speaks on the Solar Sail Project.



Al Dayton, KA4JFO, speaks on advanced gateways and geosynchronous satellites.



Jim Eagleson, WB6JNN speaks on ACSB progress.

WA2LQQ encouraged AMSAT at large to recapture its former self-confidence and accept the challenge of developing and fielding a satellite system more generally available and convenient than present day efforts.

A social 'hour' followed immediately where many old and new fast friends gathered to reflect on the day's program as well as to toast each other for past accomplishments and QSOs shared.

A banquet followed at 1800 hours. Once again the splendid organization of N6DD and the hotel staff were very much in evidence. The room was perfect, the meal was superb; not your ordinary rubber-chicken circuit fare, this. Perfectly prepared and attractively presented, the 125 lucky diners were well-treated to some of the best banquet facilities southern California had to offer.

Later in the banquet, W6SP began the presentation of awards. The awards ceremony featured the presentation of the AMSAT-Stoner 25th Anniversary Challenge Cup to grand prize winner Nick Laub, W0CA. The cup, a silver cham-

pagne bucket a walnut base standing nearly two feet tall, was presented by none other than Don Stoner, W6TNS. It had been Don who 25 years earlier had openly mused about amateurs launching their own satellite. In the view of many, this musing, in an April 1959 CQ magazine article, led to the development of Project OSCAR, OSCAR 1 and ultimately to a whole family of OSCARs, UoSATs, JASs, ISKRAs and Radio Sputniks. W6SP expressed AMSAT's thanks to the Northern California DX Foundation which sponsored the Challenge Cup as well as the other awards to participants in the contest held earlier this year. WA2LQQ expressed thanks as well to Steve Place, WB1EYI, of ARRL HQ for conceptual help with the contest as well as KO5I, K8OCL and N2CF for establishing the contest mechanism.

An award was presented in absentia to *Rich Zwirko*, K1HTV, honoring him for his many years of service as both an AMSAT Director and Vice President for Operations. AMSAT President W3IWI accepted the award for K1HTV. The plaques honoring the memory of Finn Steenstrup were then



Don Stoner, W6TNS (left), presents the AMSAT-Stoner 25th Anniversary Challenge Cup to winner W0CA. The prize was sponsored by the Northern California DX Foundation.



Everett Gracey, WA6CBA, (left) of KLM/Mirage presents AMSAT Chairman John Browning, W6SP with a Mirage D1010N 70 cm amplifier for the member recruitment contest.



ARRL SW Division Director Fried Heyn, WA6WZO.

introduced to the banquet. Two other awards were introduced. They were the Sherman Memorial Satellite Public Service Award and the AMSAT Technical Achievement Award. Both will be awarded for the first time in 1985. Julian McCassey received a special award from AMSAT recognizing his fund-raising activities in the Los Angeles area that resulted in donations of nearly \$2000.

At 1900 the Annual Membership Meeting began with President Tom Clark, W3IWI, presenting a capsule picture of major achievements over the last four years. Tom indicated where we are going and focused on our present organizational size as a bit of a quandary: too big to be a club, too small to be like ARRL. Following Tom's historical review, General Manager Bill Lazzaro, N2CF, gave a status report. Bill said our present size is 5,500 and that we show a strong growth (36%) of annual members. He said expenses need to be trimmed and more monies allocated to spacecraft projects if the growth is to be sustained for long periods. Bill concluded that the organization is generally in stable and good condition despite the slight overexpenditure in the last calendar year. Moreover, he said, prospects for health and progress were excellent.

Following the presentations by the President and General Manager, an open discussion among the members and officers present transpired. The discussion was animated, at times intense, enthusiastic and worthwhile according to those present. Major topics broached included organizational objectives, information flow between groups and individuals, publications, perspectives of 'U.S.' AMSAT by those not living in the U.S. and the need to be more sensitive to external matters, namely diplomacy. At 2300, with many questions left unfielded, the meeting was adjourned only to continue in hallways, vestibules and the bistro downstairs.

To this reporter it seemed that no one left disappointed. Conversely, although there was occasional controversy and some fine technical points that were not unanimously accepted, the entire day seemed magnificently important. It was a subtle statement of AMSAT's maturity. To stage such an event, to organize such a happening, to attract the caliber of talent abundantly in evidence, is mute testimony to a new level of AMSAT accomplishment. AMSAT is more alive now than ever in its past and may have taken, in this marvelous one-day epoch, a singular stride in a rite of passage to a mature, well-rounded, self-confident organization of which greater things may yet be born!

Artificial Comet To Brighten Christmas Morn

Early risers on Christmas day will be treated to an unusual gift courtesy of a three-nation space experiment. The test—costing \$78 million and involving three satellites and ground observers—will study the Earth's magnetic field and how it affects the solar wind. For that test, a satellite will release four canisters of barium 70,000 miles above the Pacific Ocean, creating, in effect, a man-made comet. The spectacular display that results will be visible throughout the western U.S., northern Mexico, southwestern Canada, Hawaii, and perhaps as far west as Tahiti.

Last August 16, three satellites were launched from the Kennedy Space Center in Florida, one each from the three countries participating in the experiment—the U.S., West Germany, and Great Britain. At approximately 4:08 AM PST on Christmas morning the West German satellite will eject the canisters and their barium load. The comet will be visible about ten minutes later when sunlight causes the barium atoms to radiate colored light.

Recording the event will be telescopes in New Mexico, Arizona, and Hawaii, plus instruments in two airplanes. The display will be visible to the naked eye in an area west of a line running from Chicago to the southern end of Texas. It will not be visible in areas where the sun has already risen.

Digital Conference Calls For Papers

The American Radio Relay League has issued a call for papers for its Fourth Amateur Radio Computer Networking Conference scheduled for March 30, 1985 in San Francisco, CA. The conference will be held on the first day of the West Coast Computer Faire, which runs from March 30 through April 2.

Technical papers are requested on all aspects of amateur packet radio and other forms of digital communications via terrestrial, ionospheric, meteor-scatter, and satellite media, including AMSAT-OSCAR 10 and the planned PACSAT. Topics suggested include network and system architecture, proposed standards, hardware, software, protocols, modulation and encoding schemes, applications, as well as practical experience.

The deadline for receipt of camera-ready papers is March 1, 1985. They should be mailed to Marian S. Anderson, WB1FSB, American Radio Relay League, 225 Main St., Newington, CT 06111. Those planning to present a paper should request an author's kit and should immediately inform the ARRL of the title of the manuscript. Proceedings will be sold at the conference and by mail from the ARRL headquarters.

AMSAT Board Stakes Out Major Goals; Names New Officers

Meeting in Los Angeles for the first time, AMSAT's Board of Directors moved in significant ways to articulate goals and install new officers. The 16 November meeting at the

Amfac Hotel, the scene the prior Saturday of the Satellite Symposium and Annual Membership Meeting, had many significant agenda items. The following is the briefest of summaries. Full details will be published at a later date when the minutes of the meeting are made available by AMSAT HQ.

As introduced by Jan King, W3GEY, four organizational goals were endorsed by the Board. These goals are:

1. Recognizing the relative abundance of low earth orbit launch opportunities and their particular relevance to store-and-forward communications techniques on an as-available basis, AMSAT will strive to make effective use of low-cost spacecraft technology to exploit such opportunities.

2. Recognizing the potential value and utility of continuous satellite communications to provide effective public services, AMSAT will strive to develop space systems to fulfill this need.

3. Recognizing the growing value of space science and space research activities to our organization, AMSAT will strive to participate and cooperate with other organizations in pursuing appropriate science and research activities.

4. Recognizing the value of communications services provided by the Phase 3 satellite program, AMSAT will continue to support the program.

Officers elected included John Browning, W6SP, Chairman of the Board, Vern 'Rip' Riportella, WA2LQQ, President, John Champa, K8OCL, Executive Vice President and Acting Vice President for Operations; Jan King, Vice President for Engineering. Art Feller, KB4ZJ, was elected Treasurer and Martha Saragovitz was re-elected Corporate Secretary. Additional officers named subsequently included the following appointments: Bill Brown, K9LF, Vice President, Special Projects; Bill Tynan, W3XO, Vice President for Manned Spacecraft Operations.

In other actions, the Board: Resolved to commend W3IWI on his devotion and creativity as President; decided to meet again not later than March 1985; decided to fund Phase 3C at \$50,000 per year for each of two years with 32% of the budget for projects; commended WD4FAB for his project of recruiting and finding tasks for talented volunteers; support the creation of an International Amateur Satellite Service Coordinating Committee as discussed at the Cheltenham, England meeting in July; decided that Phase IV needs more study and groundwork before major commitments could be made towards it; heard of possible Phase 3C integration options; learned that an Ariane 4 launch in mid-1986 was looking favorable for Phase 3C; that Phase 3C could contain Mode B and L transponders, a Mode L digital transponder and an S-band beacon (2.3 GHz.); learned that a PACSAT satellite was at least 1.5 years away and possibly could be launched from a Shuttle from Vandenberg AFB given that the V'Berg launches have a higher orbital inclination and would be thus more useful to Amateurs; heard of improvements in the Area Coordinator team, communications within Operations and the possibility of an Operations Management newsletter; learned of the Teleport STA granted to 21 stations; resolved to commend the ARRL on its superb effort and leadership in connection with the WARC-79 frequency allocations and to endorse the efforts of the ARRL to preserve the 220 MHz band and to have the 1270 MHz space allocation implemented;

decided to poll the membership on the matter of sale of mailing lists to outside agencies for the purpose of raising revenues; resolved to support an ARRL DXCC-satellite award providing the award was non-endorsable and that the concept was endorsed as well by AMSAT-DL; discontinue ORBIT magazine after #19 and initiate a new, less costly publication early next year.

New Transponder Schedule Reflects Eclipse, Usage Balance Realities

In a continuing balancing act under a very dynamic situation, the AO-10 command team, currently led by VE1SAT has implemented a series of schedule changes for the AO-10 transponders. As explained to ASR in late November by VE1SAT, a number of variables are combining to require a rollback in total transponder operating time. Some of the variables are amount of sunlight, sun angle, transponder usage, antenna patterns required for coverage traded off against sun angle and resultant energy acquired, etc. All told the situation is complex and changing. By mid-November VE1SAT reported a trend of gradually reduced battery voltage. Consequently, on 12 Nov., the schedule originally planned for implementation on 1 Dec. was put into effect 18 days early. The following summarizes the schedule situation as planned for the next period.

12 Nov. thru 30 Nov.	Mode B MA 246-099 Mode L MA 100-117 (Daily) Mode B MA 118-204 Off MA 205-245
1 Dec. thru 31 Dec.	Mode B MA 015-051 Mode L MA 052-068 Mode B MA 069-220 Off MA 221-014
1 Jan thru Mar (?)	Mode B MA 015-051 Mode L MA 052-068 Mode B MA 069-200 Off MA 201-014

As always, it will be helpful for you to watch the beacons for announcements of schedule changes and other notices of interest to satellite users.

Name-The-Publication Contest

As reported elsewhere, the AMSAT Board of Directors has elected to discontinue ORBIT magazine as AMSAT's main publication. Instead, AMSAT will return to a less costly publication with the first issue of the new publication due out in the mails 15 Jan. 85 according to General Manager Bill Lazzaro, N2CF. Meanwhile, AMSAT is sponsoring a "sprint" contest to name the new magazine. Have an idea or two? Send in your suggestions and you might win a new GaAs-FET preamp for yourself. Send to: Name Contest, AMSAT, P.O. Box 27, Washington D.C., 20044. The contest will run until a suitable name is chosen; approximately 31 Dec. 84. So send in your entries soon. Please limit your suggestions to 10 names per mailing. But you may send as many mailings in as you care to. Decision of the judges is final, please.

Mystery Satellite No Longer Unidentified

Thanks to some fine satellite-sleuthing by W4HHK, WB5LUA and Mr. Dick Flagg of Florida, the so-called 'mys-

tery' satellite which has been tearing up the EMEers on the 13 cm band has been identified. According to Flagg, a member of the Kettering Group, a small satellite-interest group with members spread across the globe, the mystery satellite is not one but two new Russian early warning satellites. As reported previously in these pages, (ASR #89/90) Cosmos 1217 had been identified as having been transmitting on 2304 MHz. The new satellites have been identified as catalog numbers 84-033A (Cosmos 1547) and 84-107A (Cosmos 1604??). Also, as was noted earlier, the 13 cm ham band is allocated to 'radiolocation' primary with amateur secondary. Thus there appears little constructive amateurs may do to dispose of the 'intruders'. On the other hand, as pointed out by Bob Atkins, KA1GT, the identification of these satellites and the predictability of their passage in the Molniya orbit they apparently use suggest their use to amateurs as beacons and alignment tools for both active electronics and mechanical hardware such as dish mounts, feed horns and the like.

ASR congratulates W4HHK, WB5LUA, Dick Flagg and the many others who tracked down the new sputniks. Especially noteworthy in the effort was the excellent logging and tracking as well as signal analysis of ARRL TA Paul Wilson, W4HHK of Collierville, TN. Based on Paul's logs of look angles (azimuth and elevation), Dick Flagg was able to approximate the orbit closely enough to establish a rough satellite ephemeris. Later this was compared to various known satellite orbits. When the match was made, the correlation was very good according to Flagg.

Flurry of Appointments Follows Board Meeting

Following the AMSAT Board of Directors meeting, a series of appointments was announced by AMSAT HQ. Jim McKim, W0CY, formerly Chief U.S. Area Coordinator has been promoted Assistant Vice President, Operations (AVP/O) for Administration. Jack Somers, WA6VGS, formerly Deputy Chief U.S. Area Coordinator has been elevated to the Chief Area Coordinator slot. Within the Engineering group, three Assistant Vice Presidents were reappointed: Harold Price, NK6K (AVP/E-PACSAT); Phil Karn, KA9Q, (AVP/E-Systems) and Steve Robinson, W2FPY (AVP/E-R&D).

In related appointments, the following Area Coordinators were recently named: Andy Deskur, KA1M (Eastern and Mid Massachusetts and Southern New Hampshire); Tom Wrenach, N9HR, additional AC for the Milwaukee area; Ramon Traver, WA2LJM, Southern New York; Dave Kifer, N8ETY, Northeast Ohio replacing WB8CQW who's retiring for health reasons; Larry Koziel, K8MU for Michigan replacing the retiring veteran Dick Cotton, W8DX, who put

in many, many years of dedicated service to AMSAT! Congratulations to the new appointees!

Finally, AMSAT is pleased to welcome a new Special Legal Counsel to the fold. He is Kevin Peterson, W8GQ, who works with K8OCL at Burroughs Corporate HQ in Detroit.

Short Bursts

- The Ohio AMSAT Management meeting was held on December 1 in Chillicothe. Details and photos soon.
- AMSAT-DL President DJ4ZC will be taking holiday in EA8-land again this year. Karl indicated he will again bring AO-10 equipment and expects to have a better signal than his last trip to Tenerife. Watch for Herr Doktor Meinzer, DJ4ZC/EA8 from 20 Dec. to 12 Jan.
- The North American Teleconference Net featuring packeteers Lyle Johnson, WA7GXD and Harold Price, MK6K, aired 2 Dec. to an estimated audience of 20 to 50 thousand hams around the world. The transmission was carried in real-time aboard AO-10 on SSC H2. Transmission of selected portions of the Annual Meeting from audio tapes by W6KAG preceded the TRN on 1 Dec. and 2 Dec.
- According to MARCE Project Manager Ed Stluka, W4QAU, the failure of the MARCE package on the recent Shuttle was attributed to human error by a special NASA study panel. The experiment was inadvertently not turned on. The Marshall group believes they will refly soon.
- News from G3IOR on the RS birds has them in eclipse through 7 Dec. when their normal schedule will resume. Until then RS-5 will be on Mondays and Fridays; RS-7 on Tuesdays and Saturdays; RS-8 on Thursdays and Sundays. RS-6 is not operational now. RS-9 could be launched next year but RS10 and 11 are still on the drawing boards with no further work expected for 1.5 years. There is reputed to be work on a Mode B bird but RS-9 will likely use a 15 to 10 meter transponder to take advantage of the low point in the sunspot cycle towards mid-decade.
- Leading the member recruitment drive is KA1M. Get your entries in soon. Contest closes up 31 Dec. 84!
- AMSAT welcomes a new Net Control Station aboard. Dave Cowdin, WD0HHU, of Colorado made his 15/20 meter net debut on 2 Dec. He'll join N4HY on the International Net Sundays.

Directors Election Results

W3IWI, 1333; elected Director
 WA2LQQ, 1022; elected Director
 JA1ANG, 774; elected Director
 KE3D, 711, elected First Alternate Director
 VK5AGR, 473, elected Second Alternate Director

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